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MELOIDOGYNE ON POTATO AND OTHER SOLANUM SPP.

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Meloidogyne on Potato and other Solanum spp.

1. AHMAD, R. & KHAN, I.U. Root knot on potato in West Pakistan. Plant Disease Reporter (1973) 57 (6), 505-506.
Meloidogyne hapla was found on the recently introduced potato varieties, Desiree, Patrones and Multa at Murree and Sialkot in Pakistan. It is not yet clear whether this nematode is indigenous to this part of Pakistan, or has been recently imported.
2. ANON., 1959. "Potato - a root-knot nematode (Meloidogyne arenaria)."
Canadian Insect Pest Review, 37 (7), 242.
The occurrence of an infestation of Meloidogyne arenaria on potato tubers is reported from Grand Forks, British Columbia. Tubers infested with M. arenaria do not show the typical nodules as they do when infested with M. hapla.
3. ANON., 1965. "A hybrid resistant to root-knot nematode." Indian Potato J., 7 (1), 53.
Potato hybrid H.C.294 resistant to Meloidogyne incognita, is expected to do well in shallow soils prone to drought.
4. BALASUBRAMANIAN, M. & PURUSHOTHAMAN, D. Phenolic contents of root-knot affected tissues. Indian Journal of Nematology (1972, publ. 1973) 2 (1), 77-79.
Experiments were conducted in the glasshouse with seedlings of Solanum melongena inoculated with 2nd-stage juveniles of Meloidogyne incognita. There was little difference in total phenolic content between galled and healthy roots. However, the ortho-dihydroxy phenolic content was higher in galled than in healthy tissue. This increase might be a defensive reaction following root-knot infection.
5. BERGESON, G.B., 1966. "Mobilization of minerals to the infection site of root knot nematodes." Phytopathology, 56 (11), 1287-1289.
Excessive amounts of nitrogen and potassium, that accumulated in tomato roots infected with Meloidogyne incognita, resulted from metabolic upsets in which these minerals were mobilized to the site of infection.
6. BOOCK, O.J., 1951. "Combate aos nematóides pela aplicação de fumigantes no solo. Efeito do D-D e Dowfume W-40 no combate aos nematóides formadores de galhas, em tubérculos de batatinha. Bragantia. Campinas, 11 (1/3), 13-18.
Experiments in the application of D-D mixture and Dowfume W40 (ethylene dibromide) for the control of root-knot eelworms in potatoes were made in two distinct phases in soil of glacial type at Campinas, São Paulo, Brazil. The treatments, given 18 days before planting, were (i) fertilizer alone, (ii) fertilizer plus D-D at the rate of 78 litres per hectare, (iii) fertilizer plus W40 at 39 litres per hectare and (iv) no fertilizer or fumigant. In the first year the production on plots fertilized

and fumigated was slightly better than on plots fertilized but not fumigated, and untreated plots were rather worse. In the second year, after no further treatment, two varieties of potato were grown; there was almost no difference between those on fumigated plots and those on plots fertilized only:

7. BRÜCHER, H., 1967. "Genetic resistance against nematodes in Argentine Solanum spp." (Abstract.) Phytopathology, 57 (1), 7.
8. CARVALHO, J.C., 1951. "Nematoides das raízes encontrados em São Paulo." Arquivos do Instituto Biologico, Sao Paulo, Year 1950-51, 20. 165-172.

Earlier reports of Meloidogyne sp. in potatoes in the state of São Paulo are confirmed and its presence on the roots of 35 different host plants is recorded.
9. CYPRUS, 1969. "Cyprus Agricultural Research Institute, Annual Report, 1968." Nicosia: 123 pp. (Plant nematodes pp. 61-82.)
(Control of Meloidogyne javanica on egg plant.)
10. CYPRUS. AGRICULTURAL RESEARCH INSTITUTE, 1970? "Annual report for 1969." Nicosia, Cyprus: Ministry of Agriculture and Natural Resources, 128 pp. (Nematology, pp. 69-71.)

Control of Meloidogyne javanica on Solanum melongena by pre-planting soil treatment with D-D increased yields at one locality but not at a second.
11. DALLIMORE, C.E., 1962. "The effect of soil fumigation for control of root-knot nematode on the quality of Russet Burbank potatoes." (Abstract of paper presented at the 1961 Annual Meeting of the Pacific Division of the American Phytopathological Society.) Phytopathology, 52 (4), 360.

Although there was no significant difference in the degree of control of root-knot nematodes infesting potato-growing land following treatment with various soil fumigants, yield and quality of tubers were greatest following the use of W-85 (EDB) and Telone (dichloropropene) applied in the autumn and D-D applied in the spring.
12. DALMASSO, A. (Nematodes of potatoes.) Les nématodes de la pomme de terre. Fiche d'Information, Institut Technique de la Pomme de Terre, Paris (1972) No. 48, 4 pp.
(Brief mention of Meloidogyne on potato.)
13. DEMENT'EVA, S.P. (Parasitic species of nematodes on solanaceous crops in Moldavia.) In Parazity zhivotnykh i rastenii. Kishinev: Izdatel'stvo "Shtiintsa" (1971) No. 7, 139-142.

Meloidogyne hapla and M. incognita were found injuring egg-plant in 10 of 15 regions in Moldavia, USSR, both in glasshouses and in the open. Attack varied greatly in intensity according to region. Spread occurred from cultivations under glass to outdoor crops. Infestation was favoured by monoculture.

14. ELIAVA, I.Y., 1961. (Dynamics of Meloidogyne infections.) In: Skryabin, K.I. & Turligina, E.S. (Editors), "Voprosi fitogel-mintologii." Moscow: Akademiya Nauk SSSR, pp. 234-242.
Eliava studied Meloidogyne infections on tomatoes and Solanum melongena throughout their growing period by collecting samples every 15 to 18 days from 3 districts in the Georgian S.S.T. Numbers of Meloidogyne showed clear-cut changes relative to other plant nematodes present. Saprobiotic nematodes increased in number towards the end of the growing period. These fluctuations are graphed. The conditions influencing entry into and exit from roots of Meloidogyne larvae are discussed.
15. FASSULIOTIS, G. Susceptibility of eggplant, Solanum melongena, to root-knot nematode, Meloidogyne incognita. Plant Disease Reporter (1973) 57 (7), 606-608.
The entire collection of the U.S. Department of Agriculture's varieties of eggplant, Solanum melongena, and several Japanese hybrids were screened for resistance to Meloidogyne incognita. There were no resistant plants. The resistant wild species S. sisymbriifolium was crossed with the eggplant but although fruits were produced the seeds were not viable.
16. FASSULIOTIS, G. & DUKES, P.D. Disease reactions of Solanum melongena and S. sisymbriifolium to Meloidogyne incognita and Verticillium albo-atrum. (Abstract.) Journal of Nematology (1972) 4 (4), 222-223.
No resistance to Meloidogyne incognita was found in 300 varieties and plant-introductions of Solanum melongena but S. sisymbriifolium was resistant to the nematode.
17. FAULKNER, L.R., SKOTLAND, C.B. & HEINEMANN, W.W., 1965. "Survival of Meloidogyne hapla and Verticillium dahliae in plant tissues used for animal feed." Phytopathology, 55 (3), 257-258.
Tests were carried out to determine whether Meloidogyne hapla, as found in potato tubers, would survive (i) passage through a beef animal, (ii) composting in manure, (iii) ensilage for 4 months, (iv) rapid freezing to -9°C. for 48 hrs. with and without pre-cooling at 5°C. for 48 hrs. and (v) alternate freezing and thawing as occurs outdoors from November to March in Washington State. All treatments were lethal to the nematodes except rapid cooling preceded by 48 hrs. at 5°C.
18. FELDMESSER, J. & GOTH, R.W., 1970. "Association of a root knot with bacterial wilt of potato." (Abstract.) Phytopathology, 60 (6), 1014.
19. FRANCO, P.J., 1971. "Evaluation of potato, Solanum sp., resistance to the attack of the root-knot nematode, Meloidogyne incognita (Kofoid & White) Chitwood, in Peru." (Abstract.) Nematropica, 1 (1), 13.
(Resistance in hybrids of Solanum demissum.)

20. GOSS, O.M., 1958. "Root-knot eelworm of potatoes." Journal of Agriculture of Western Australia, 3rd series, 7 (6), 638-640.
Heavy infestations of root-knot nematodes causes swellings on potato tubers which may resemble common scab. Light infestations may easily escape notice. Mature females are embedded in the tissue of the tuber surrounded by a translucent area. Transmission of the nematodes may be on implements, in drainage water, in infected seed tubers or seedlings. Prevention of spread, avoidance of host plants and fumigation with D-D or EDB are suggested as control measures.
21. GRIFFIN, G.D. & JORGENSEN, E.C., 1969. "Pathogenicity of the northern root-knot nematode (Meloidogyne hapla) to potato." Proc. helminth. Soc. Wash., 36 (1), 88-92.
Meloidogyne hapla caused the most severe root galling of potato variety Russet Burbank at temperatures between 25 and 30°C. Tuber infection was not affected by plant age or tuber size at the time of inoculation. Roots and tubers were galled at all soil moisture levels between 25 and 100% F.C. (field capacity) with a maximum degree of galling at 100% F.C. Above 100% F.C. the number of M. hapla infecting the tubers fell off.
22. GRIFFIN, G.D. & JORGENSEN, E.C., 1969. "Life cycle and reproduction of Meloidogyne hapla on potato." Pl. Dis. Repr., 53 (4), 259-261.
The optimum temperature for reproduction of Meloidogyne hapla on potato was found to be 25°C. in pot tests in the USA. There was no reproduction at 15°C. The life-cycle at 25°C. took about 7 weeks although 2nd-stage larvae from the 2nd generation were not recovered from the soil until 10 weeks after inoculation.
23. GRUJIČIĆ, G. & PAUNOVIĆ, M. (A contribution to the study of the root-knot nematode (Meloidogyne hapla Chitwood).) Zastita Bilja (1971) 22 (112/113), 147-152.
(Brief mention of Meloidogyne hapla on potato.)
24. HEISER, C.B., Jr. Notes on some species of Solanum (Sect. Leptostemonum) in Latin America. Baileya (1971) 18 (2), 59-65.
(Solanum hirtum resistant to Meloidogyne sp.)
25. HELTON, A.W., 1964. "Chemotherapeutic control of a root-knot nematode (Meloidogyne hapla) with dimethoate under greenhouse conditions." Pl. Dis. Repr., 48 (11), 881-885.
Pre-planting immersion of infected potato seed pieces in dimethoate (Cygon 46% E.C.) at 50, 200 and 800 p.p.m. for 1 min., 1 hr. or 24 hrs., resulted in appreciable reduction in gall formation and, at 800 p.p.m. for 24 hrs., elimination of Meloidogyne hapla. Temporary stunting occurred at all concentrations, but a twofold increase in numbers of tubers was obtained with the 800 p.p.m./24 hr. treatment. Spraying the potato plants with dimethoate, one week after emergence of the tops from infected tuber pieces, eliminated the nematodes.
26. HICKEY, K.D. (Editor), 1971. "Fungicide and nematicide tests. Results of 1970." Winchester, Va: American Phytopathological Society, Vol. 26, 196 pp. (Nematodes pp. 152-181, 188-189.)
27. HOYMAN, W.G. & DINGMAN, E., 1967. "Effect of disulfoton on tuber nematode galls, Verticillium wilt and yield of Russet Burbank potato." Am. Potato J., 44 (5), 165-173.

Potato seed infected with Verticillium and Meloidogyne hapla was given a banding treatment of 3 lb. per acre of Disulfoton at planting and an equal amount as a side dressing at various times during the growing season. This treatment delayed the appearance of wilt symptoms. Plots treated with banding and side dressing also had fewer root galls than the controls, as did plots treated with side dressings only.

28. INDIA, 1971. "Report of the Indian Council of Agricultural Research, 1967-68." New Delhi: 163 pp. (Plant nematodes pp. 10, 11.)
In Himachal Pradesh, India, DDT at 400 litres per hectare was effective in controlling Meloidogyne on potato.
29. JEFFERS, W.F., COX, C.E., JEHLE, R.A., WEAVER, L.O., MORGAN, O.D. & MOORE, J.E., 1951. "Notes on occurrence of some plant diseases in Maryland during 1950." Plant Disease Reporter, 35 (8), 385-386.
A wide range of plant diseases and infestations affecting crops in Maryland during 1950 is reported. Meloidogyne hapla on Pontiac potatoes is a new record.
30. JENSEN, H.J., 1953. "The root-knot nematode disease of potatoes." Proceedings of the Oregon Seed Growers League, 13th Annual Meeting, pp. 79-80.
31. JOUBERT, J. & DALMASSO, A. (Possible interaction between Rhizoctonia solani and Meloidogyne incognita on potato.) (Soc. Franc. Phyto-pathol., Paris, 16th May 1972. Abstract). Annales de Phyto-pathologie (1972) 4 (4), 409.
32. KHANNA, M.L., 1966. "Multiple resistance to heat, drought, frost, charcoal rot and nematode in commercial potato." (Correspondence.) Curr. Sci., 35 (19), 494-496.
Of 693 potato selections tested in India few had multiple resistance; HC 294 and HC 115 were tolerant to heat, drought, frost and root-knot nematode.
33. KHANNA, M.L. & NIRULA, K.K., 1964. "Breeding potatoes for resistance to root-knot nematode." (Correspondence.) Current Science, Bangalore, 33 (10), 314.
Of 101 hybrid cultures of Solanum tuberosum tested in the field for their susceptibility to Meloidogyne incognita, one line, H.C.294 (also referred to as H.C.194), a selection from the cross Kufri Red x (Gladstone x Taborky), showed no symptoms of attack. Pot tests confirmed that only a few larvae invaded the roots of this selection; no mature females were observed and no knots were found on the roots, whereas control plants of Kufri Red were heavily infested. H.C.294 is also resistant to high temperatures and drought.
34. LAMBERTI, F. Yield responses in relation to the chemical control of root-knot nematodes in Southern Italy. Bulletin OEPP (1973) 3 (1), 55-66.

Recent work in southern Italy on chemical control of Meloidogyne on varieties of oriental tobacco, tomato and egg-plant is summarised with the aid of tables. Over 20 nematicides were tested, all as pre-plant treatments. Limited trials with egg-plant in Meloidogyne-infested soil produced no significant yield increases.

35. LUC, M., 1959. "Nématodes parasites ou soupçonnés de parasitisme envers les plantes de Madagascar." Bulletin. Institut de Recherches Agronomiques de Madagascar, No. 3, pp. 89-101.

After a general introduction to plant-parasitic nematodes, the damage they cause and their control by cultural and chemical means, Luc gives preliminary observations on the nematodes he found associated with 36 species of plants during a three months' visit to Madagascar. A number of new hosts are recorded for Meloidogyne javanica. M. javanica was wide-spread in vegetable gardens on many plants. At the seed potato selection and multiplication centre it is a serious pest, all varieties being attacked with losses of 10% to 20%. There is a serious risk of the nematode being spread on seed tubers.

36. MARTIN, G.C. Potatoes and plant parasitic nematodes. Stocks and Crops (1972) 3 (7;8), 27, 29, 31; 38-39.

Meloidogyne spp. on potato crops in Rhodesia is discussed. Control by crop rotation, fallowing or fumigation is suggested. Winter potato production on infested soils has also been found to reduce nematode attacks on tubers.

37. MARTIN, H.E. List of plant pests and diseases in Saudi Arabia. Cairo, United Arab Republic: FAO (1971) 55 pp.

Meloidogyne javanica and M. incognita acrita has been recorded on egg plant in Saudi Arabia.

38. MINZ, G. & GORODEISKI, N., 1953. (Sowing seed potatoes grown in nematode-infected soil.) Hassadeh, 34 (3), 166-167.

Microscopical examination of outwardly clean seed potatoes of "Up to Date" and "Arran Banner" varieties, taken from five localities infested with Meloidogyne sp., showed that such tubers may harbour internally large numbers of viable nematodes in all stages and should therefore be proscribed as seed material.

39. MITCHELL, B.L., BLAIR, B.W. & MARTIN, G.C., 1971. "Potatoes in Rhodesia, Part II. Pests of potatoes." Technical Bulletin, Rhodesia Agricultural Journal, No. 11, pp. 25-31.

Control of Meloidogyne javanica on potato in Rhodesia is best effected by including at least 4 years of Weeping Love Grass (Ermelo strain), Katambora Rhodes Grass or Bambatsi Panicum grass in rotations.

40. MORENO, A.F., 1956. "Nematodos de la papa en el Valle de Rio Negro." Idia. Buenos Aires, No. 106/108, p. 57.

A search for nematodes in various localities of the valley of the Rio Negro revealed the presence of the root-knot nematode Meloidogyne incognita on tubers of the potato variety Katahdin.

41. MUKHOPADHYAYA, M.C., 1970. "Nematodes associated with fruit trees and vegetable crops in Himachal Pradesh." J. Res. Punjab agric. Univ., 7 (4, Suppl.), 656-658.
- In a survey conducted at different altitudes from 500 to 2,500 m. in Himachal Pradesh, India, 11 nematode genera were found, including Meloidogyne incognita, found at high altitudes on potato (2,500 m.) and M. javanica in the plains (500 m.) on brinjal (Solanum melongena).
42. MUKHOPADHYAYA, M.C., 1970. "Efficacy of D-D, EDB, DBCP and V-C 13 in controlling plant parasitic nematodes." J. Res. Punjab agric. Univ., 7 (4, Suppl.), 659-662.
- In a potato field in Himachal Pradesh, India, infested with Meloidogyne incognita, numbers of larvae were reduced by 90% with D-D (400 litres per hectare) and EDB (150 kg. per hectare) and by 70% with DBCP (45 litres per hectare), as compared with an increase of 65% in the control plots.
43. NAVARRO, A.R., 1971. "Reaction of 25 'Naranjilla' (Solanum sp.) introductions to the root-knot nematode (Meloidogyne sp.)." (Abstract.) Nematropica, 1 (1), 3. (Also in Spanish p. 21.)
- (Solanum torvum resistant: S. pseudolulo and S. quitoense partially resistant.)
44. NAYAR, M. & NIRULA, K.K., 1969. "Breeding for resistance to root-knot nematodes affecting potatoes." (Abstract.) All India Nematology Symposium, New Delhi, August 21-22, 1969, pp. 57-58.
45. NIELSEN, L.W. & SASSER, J.N., 1959. "Control of root-knot nematodes affecting Porto Rico sweetpotatoes." Phytopathology, 49 (3), 135-140.
- The problem of root-cracking in sweet-potatoes grown in North Carolina is reviewed. This damage is attributed to the root-knot nematode Meloidogyne incognita var. acrita. Both D-D and EDB were effective in reducing nematode attack and increasing yields and root quality. Nematicides applied on a vermiculite carrier were shown to be more effective than liquid applications. Nematode densities generally increased following the initial reduction by soil treatment but evidently the greatest damage to the sweet-potato occurs early in the growing season.
46. NIRULA, K.K., 1961. "Control of root knot nematodes." Indian Potato Journal, 3 (2), 72-75.
- D-D at 400 lb. per acre, EDB at 200 lb. per acre and Nemagon at 20 lb. per acre reduced galling of potato roots and tubers in field trials in Patna, India, against Meloidogyne javanica in 1959 and 1960. Parathion at 1 lb. per acre was less effective. None of the treatments was phytotoxic or affected the flavour of the produce.
47. NIRULA, K.K. & BASSI, K.K., 1965. "Thermotherapy for root-knot nematode (Meloidogyne incognita) in potato tubers." Indian Potato J., 7 (1), 9-11.

Seed potato tubers infested with Meloidogyne incognita were incubated at 40, 45 and 50°C. for 24, 48, 96, 144 and 192 hr. to determine the best temperature-time combination for killing the nematodes while retaining viable tubers, 48 hr. at 45°C. killed 98.9% of the nematodes but left the tubers 100% viable. A longer incubation period or incubation at 50°C. killed all the nematodes but drastically decreased the viability of tubers.

48. NIRULA, K.K. & BASSI, K.K., 1965. "Effect of French marigold as a trap crop on control of root-knot nematodes in potato fields." Indian Potato J., 7 (2), 64-68.
- Tagetes patula when grown with potatoes significantly decreased the number of Meloidogyne incognita in the soil and root-knot on roots and tubers and increased yield.
49. NIRULA, K.K., BASSI, K.K. & MALHOTRA, V.P., 1965. "Efficacy of some soil fumigants in the control of root-knot nematodes in potato fields." Indian Potato J., 7 (2), 95-99.
- D-D, EDB, DBCP and Dorlone (a mixture of dichloropropane-dichloropropene + EDB) decreased the numbers of Meloidogyne incognita in potato fields in Simla.
50. NIRULA, K.K. & RAJ, B.T., 1969. "The effect of seasonal variation on the vertical distribution of Meloidogyne incognita in potato fields." (Abstract.) All India Nematology Symposium, New Delhi, August 21-22, 1969, pp. 3-4.
51. NIRULA, K.K., KHUSHU, C.L. & RAJ, B.T., 1969. "Resistance in tuber-bearing Solanum species to root knot nematode, Meloidogyne incognita." Am. Potato J., 46, 251-253.
- Of 41 clones from 25 species, good resistance was found in Solanum bulbocastanum, S. gandarillasii, S. lignicaule, S. ajanhuiri and S. tuberosum group Andigena. S. vernei and S. spegazzinii were the most resistant. (From Pl. Breed Abstr., 40, No. 3346.)
52. OLTHOF, T.H.A. & POTTER, J.W. Relating nematode populations to crop losses. Canada Agriculture (1972), 17 (1), 18-19.
- In order to relate nematode population levels to crop losses, a microplot technique was used employing clay drain pipes sunk vertically in field soil and containing mixtures of nematode-infested and steam sterilized soil in different proportions to give a range of infestation levels. Using the northern root-knot nematode (Meloidogyne hapla) and 5 spring-sown vegetables, it was shown that economic loss (=5% reduction in marketable yield) for potatoes was reduced by 300 nematodes/lb of soil.
53. OTEIFA, B.A. & ABDERLAHMAN, T.B. Histopathogenesis of Meloidogyne incognita on roots of aldicarb treated potatoes. (Abstract.) In International Congress of Plant Pathology (2nd), Minneapolis, Minnesota, September, 5-12, 1973. Abstracts of papers, St. Paul, Minnesota, USA: American Phytopathological Society Inc. (1973) No. 1098.

54. OVERMAN, A.J., BRYAN, H.H. & HARKNESS, R.W. Effect of off-season culture on weeds, nematodes, and potato yields on marl soils. Proceedings, Florida State Horticultural Society (1971), 84, 135-139.

The effects of mechanical and chemical fallowing and a summer cover crop of Sorghum vulgare on the weed infestation, nematode numbers and yield of potatoes grown on marl soil in Florida, USA, were compared. Nematode counts were taken in the autumn before ploughing, 50 days after planting and immediately before harvesting. Meloidogyne spp. were found. Discing and the use of paraquat plus dalapon gave good weed control and improved potato yields. Sparse stands of sorghum encouraged heavy weed infestation and contributed to high nematode population and low potato yields but it was not possible to differentiate between the effect of weeds and nematode numbers.

55. PHILIS, J. Control of root-knot nematode (Meloidogyne javanica (Treub, 1885) Chitw.) on eggplant by pre-planting treatments. Phytopathologia Mediterranea (1971), 10 (1), 117-119.

The nematicides D-D and DBCP were used at 4 locations in Cyprus in experiments for the control of Meloidogyne javanica on Solanum melongena. Injection of D-D at 52.2 litre/l, 309m² three weeks before planting gave significant increases in yield in several experiments and would be economically profitable. Root-galling indices were also reduced by D-D. DBCP was less effective.

56. PRATELLA, G.C., 1959. "Meloidogyne incognita var. acrita sui tuber di patata in Italia." Annali della Sperimentazione Agraria, 13 (6), Suppl. pp. clxxxi-clxxxviii.

Potatoes have been found badly infested with Meloidogyne incognita var. acrita in Rovigo, Italy. The symptoms are described and the life history of the nematode is given briefly. For control the growing of resistant crops, flooding or the use of D-D are suggested.

57. RAJ, B.T. & NIRULA, K.K., 1969. "Trials on the eradication of root-knot nematodes from potato fields with D-D." (Abstract.) All India Nematology Symposium, New Delhi, August 21-22, 1969, pp. 51-52.

58. RAJ, B.T. & NIRULA, K.K., 1969. "Effect of crop rotation on nematodes in potato fields." (Abstract.) All India Nematology Symposium, New Delhi, August 21-22, 1969, p. 60.

59. RAJ, B.T. & NIRULA, K.K., 1970. "Soil treatment for the control of root-knot nematode on potato (Solanum tuberosum L.)." Indian J. agric. Sci., 40 (10), 878-882.

The control of Meloidogyne incognita on potato by various nematicides was assessed in 3-year trials at Simla, India. Build-up of nematode numbers and root infection was significantly lower in plots treated with Temik, phorate, disulfoton, Zinophos (thionazin), Nellite, nemacide (dichlofenthion) and Vapam than in control plots, but no treatment completely eradicated the nematode. Temik prevented attack of tubers and Zinophos, phorate, disulfoton, Nellite and nemacide reduced tuber infection.

60. RAJ, B.T. & NIRULA, K.K., 1971. "Eradication of root-knot nematode with D-D in potato fields." Indian Phytopathology, 24 (1), 155-158.
- Trials with D-D against Meloidogyne incognita, were carried out in sandy loam fields which were continuously under potatoes for the last 10 years and had high infestation level of nematodes. D-D at 800 litres per hectare was significantly more effective in reducing the population of Meloidogyne larvae than at 200 litres per hectare. Completely disease-free tubers were obtained by treating the fields with D-D at rate of 600 and 800 litres per hectare. However, even this rate did not significantly increase the yield of healthy tubers.
61. SADYKHOV, D.M., 1970. (Testing of some new chemical preparations for the control of the root-knot nematode on Apsheron.) (Proceedings of the Scientific Session of Helminthologists of Azerbaidzhan, November 1964.) Baku: Izdat. "ELM", pp. 149-154
- In 1961-63 losses due to Meloidogyne on the Buzovninsk farm on the Apsheron peninsular in the Azerbaidzhan SSR equalled 54% of the egg plant crop.
62. SAHARAN, G.S. & CHOCHAN, J.S. A survey of diseases of plants in the Kangra district, Himachal Pradesh. Journal of Research (1972) 9 (1), 68-73.
- In a survey of disease on 33 crops in Himachal Pradesh, India, root-knot due to Meloidogyne was found on Solanum melongena, pea and tomato.
63. SASSER, J.N. & McLAUGHLIN, F.W., 1959. "The influence of root-knot-nematode-infected seed pieces and infested soil on potato production." Phytopathology, 49 (5), 319.
- Seed potatoes of three categories, (i) infested with Meloidogyne incognita, (ii) symptomless but from a root-knot infested crop and (iii) certified, were planted in untreated soil and in soil treated with D-D broadcast at 20 gal. per acre. Yields showed that seed quality was of little importance when potatoes were planted in infested soil. Both selected and obviously infested tubers increased soil infestation and decreased quality and yield.
64. SCHNEIDER, J. (Nematodes of field crops. Potato nematodes.) (Journées françaises d'études et d'information, Paris, 3-5 November, 1971.) Paris, France: Association de Coordination Technique Agricole (ACTA). (1971), 327-348.
- (Short note on the damage caused to potato by Meloidogyne sp.)
65. SEN, A.K., 1960. "Preliminary studies on parasitic nematodes on vegetable crops in Bihar." Indian Agriculturist, 4 (2), 113-116.
- The nematodes which attack vegetable crops in Bihar are mainly Meloidogyne javanica and M. incognita. The symptoms of infested plants are described and the biology of root-knot nematodes on potato discussed. Of the four different chemicals used in field trials, D-D gave good eelworm control on potato plots but was rather expensive to use.

66. SIKKA, L.C., NIRULA, K.K. & CHAUHAN, H.S., 1969. "Nature of resistance to Meloidogyne incognita in potato seedling H.C.294." (Abstract.) All India Nematology Symposium, New Delhi, August 21-22, 1969, p. 48.
67. SITTERLY, W.R. & FASSULIOTIS, G., 1965. "Potato losses in South Carolina due to the cotton root-knot nematode, Meloidogyne incognita acrita." Pl. Dis. Repr., 49 (8), 723.
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- (Brief mention of control of Meloidogyne in potato.)
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Excised root portions of the garden eggplant Solanum melongena showed an enormous random variation some being repellent, some neutral and others attractive to the larvae of Meloidogyne hapla. These differences are interpreted as the result of interplay between a repellent agent arising from the decay or breakdown of the root and an attractive agent present in the living plant. Variations in the intensity of the attractive agent can be expressed in terms of different speeds of breakdown or of different amounts present in the root before excision.

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ANNOTATED BIBLIOGRAPHIES	Period covered	Number of References	Price	
			\$	£
1. <u>Cysticercus ovis</u> and <u>Taenia ovis</u>	1932-69	59	1.30	0.50
2. <u>Taenia saginata</u> and <u>T. solium</u> in Lebanon, Turkey and Yugoslavia	1932-69	50	1.30	0.50
3. Helminthology in Iraq	1932-69	71	1.80	0.70
4. Humpsore (Stephanofilariasis) in domestic animals	1932-69	71	1.80	0.70
5. Skin lesions in domestic animals caused by <u>Elaeophora</u> , <u>Rhabditis</u> & <u>Parafilaria</u>	1932-69	55	1.30	0.50
6. Helminths and plant nematodes of Morocco	1932-70	111	2.60	1.00
7. <u>Angiostrongylus</u>	1932-71	210	7.00	2.70
8. Factors influencing the development of <u>Ascaris</u> eggs	1932-71	120	3.10	1.20
9. Helminths in archaeological and pre-historic deposits	1910-72	32	1.30	0.50
10. Neurological involvement in <u>Trichinella spiralis</u> infection in man	1932-70	51	1.60	0.60
11. White tip disease (<u>Aphelenchoides besseyi</u>) of rice in Africa and the tropics	1913-72	150	6.20	2.40
12. Helminths in dogs in Japan	1960-72	89	2.60	1.00
13. Nematodes on soybean (<u>Glycine max</u>)	1932-72	184	5.70	2.20
14. <u>Oswaldocruzia</u> (Nematoda)	1930-73	29	1.30	0.50
15. Transmission of plant viruses by nematodes	1930-73	120	3.10	1.20
16. Plant nematology in Venezuela	1932-72	21	1.30	0.50
17. <u>Diorchis</u>	1931-72	46	3.10	1.20
18. <u>Nacobbus</u> (Nematoda: Tylenchida)	1930-73	19	1.30	0.50
19. Plant Nematodes of the Caribbean	1932-73	229	7.13	2.75
20. <u>Dicrocoelium hospes</u>	1964-74	11	1.30	0.50

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